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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/981,364	10/17/2001	Jonathan A. Nagel	1025	6890
7590	06/01/2005		EXAMINER	
John P. Maldjian Senior Patent and Trademark Counsel TyCom (US) Inc. 250 Industrial Way West, Rm 2B-106 Eatontown, NJ 07724			TRAN, DZUNG D	
			ART UNIT	PAPER NUMBER
			2633	
DATE MAILED: 06/01/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/981,364	NAGEL ET AL.
Examiner	Art Unit	
Dzung D. Tran	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 27 December 2004.  
 2a) This action is **FINAL**.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1,4-6 and 8-10 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1,4-6 and 8-10 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### *Specification*

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kakui US patent no. 6,549,315 in view of Namiki et al. US patent no. 6,611,370.

Regarding claims 1 and 9, Kakui discloses in figure 1, an optical communication system comprising: a transmitting station 2 (i.e. transmitter) configured to transmit a plurality of optical signals (for example, signals of L band having wavelengths 1574 nm, 1575 nm, 1576 nm.... 1605 nm) over an optical information channel (4<sub>1</sub>-4<sub>N</sub>), each of said signals being at an associated wavelength in a range from about 1560 nm to about 1630 nm (for example, each of signals having wavelengths 1574 nm, 1575 nm, 1576 nm.... 1605 nm of L-band is in a range from about 1560 nm to about 1630 nm), see col. 1, lines 28-38, col. 5, lines 8-14, 33; and a receiving station 3 (i.e. receiver) configured to receive said plurality of optical signals.

Kakui further discloses the excitation light source 352 has a wavelength of 1480 nm (col. 8, line 48) for supplied the optical power for amplification optical wave-guide 312 for L-band.

However, Kakui does not specifically disclose at least one Raman amplifier configured to amplify said range of wavelengths and wherein said at least one Raman amplifier includes multiple Raman pumps, each having a different pump wavelength in a range from about 1480 nm to about 1520nm. Namiki discloses a Raman amplifier system having an optical fiber 12 wherein at least one Raman amplifier 300 of figure 5 includes multiple Raman pumps (3<sub>1</sub>, 3<sub>2</sub>, . . . , 3<sub>4</sub>) each having a different pump wavelength ( $\lambda_1$ ,  $\lambda_2$ ,  $\lambda_3$ ,  $\lambda_4$ ) in a range from about 1480 nm to about 1520nm (e.g., pump lasers from 1400nm to 1499 (see col. 16, lines 14-20) which is in a range from about 1480 nm to about 1520nm). At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to include the Raman amplifier of Namiki in the system of Kakui. One of ordinary skill in the art would have been motivated to do this in order generate gain in a wider range of bandwidth, thus, it minimizes the transmission loss in an optical fiber.

Regarding claim 4, Kakui further discloses optical amplifier is an erbium doped fiber amplifier (col. 6, lines 57-59).

3. Claims 5, 6, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kakui US patent no. 6,549,315 in view of Namiki et al. US patent no. 6,611,370 and further in view of 765 Gb/s over 2,000 Km transmission using C and L band EDFA, Matthew Ma et al. OFC'99, Postdeadline papers, PD16 (1999), pp1-3.

Regarding claims 5, 6 and 10, as per claims above, the combination of Kakui and Namiki disclose all the limitations except for optical information channel spans of at

least 2,000 km between said transmitter and said receiver. Ma, from the same field of endeavor, discloses an optical transmission system using L-band amplifier that transmit the L band channels over the spans of more than 2000 Km (PD16-1, first paragraph PD16-2, last paragraph). At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to include the teaching of Ma in the combination system of Kakui Namiki. One of ordinary skill in the art would have been motivated to do this in order to transmit the acceptable optical signal from the transmitter end to the receiver end over the long –haul optical communication system (2000 Km or more) and improve the noise figure (PD16-2- PD16-3).

Regarding claim 8, Kakui further discloses optical amplifier is an erbium doped fiber amplifier (col. 6, lines 57-59).

***Response to Arguments***

4. Applicant's arguments with respect to claims 1, 4-6 and 8-10 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dzung Tran whose telephone number is (571) 272-3025.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, Jason Chan, can be reached on (571) 272-3022.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

*M. R. Sedighian*  
**M. R. SEDIGHIAN**  
**PRIMARY EXAMINER**

Dzung Tran

05/26/2005